

## II. REMARKS

Independent claim 301 has been amended to add a portion of the limitation of claim 311, and claim 311 has been cancelled. Independent claim 312 has been amended to add a portion of the limitation of claim 323, and claim 323 has been cancelled. Independent claim 312 has also been amended to delete the word "environmental."

### A. Section 112 Rejection

The Examiner has rejected independent claim 312 (and its dependent claims) as vague and indefinite. In this regard, the Examiner objects to the phrase "environmental precipitation." To clarify the phrase, the applicants have deleted the word "environmental." "Precipitation" is a well-understood term and is plainly not vague and indefinite. For example, the American Heritage Dictionary defines "precipitation" as "any form of water, such as rain, snow, sleet, or hail, which falls to the earth's surface." Further, the Federal Circuit approves of the use of dictionaries to ascertain the meaning of terms in patent claims. *See, e.g., Texas Digital Sys. v. Telegenix, Inc.*, 308 F.3d 1193, 1203 (Fed. Cir. 2002).

### B. The Double-Patenting Rejection

The applicants are filing herewith terminal disclaimers for U.S. Patent No. 6,090,489 and U.S. Patent No. 6,165,256. Accordingly, the applicants respectfully request withdrawal of the double-patenting rejection.

### C. The Obviousness Rejections

All of the remaining rejections (which rely on Field and Heller, respectively) are based on 35 U.S.C. § 103, regarding the requirement of nonobviousness.

#### 1. The Governing Legal Principles

The test of obviousness under 35 U.S.C. § 103 is whether the subject matter of the claimed invention would have been obvious to one ordinarily skilled in the art at the time the

invention was made. *In re Dembiczak*, 175 F.3d 994, 998 (Fed. Cir. 1999). The analysis must be based on several factual inquiries: (1) the scope and content of the prior art; (2) the differences between the prior art and the claimed invention; (3) the level of ordinary skill in the art at the time of the invention; and (4) any objective evidence of nonobviousness. *Id.*; *see also Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

A determination of obviousness cannot be based on hindsight by picking and choosing among the individual elements of assorted prior art references to recreate the claimed invention. *Akzo N.V. v. United States Int'l Trade Comm'n*, 808 F.2d 1471, 1481 (Fed. Cir. 1986). A determination that combination claims are obvious based on finding similar elements in separate prior art patents would be "contrary to statute and would defeat the congressional purpose in enacting Title 35." *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1577 (Fed. Cir. 1987). There must be some teaching or suggestion in the references to support their use in the particular claimed combination. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999); *Smithkline Diagnostics v. Helena Labs. Corp.*, 859 F.2d 878, 887 (Fed. Cir. 1988).

Further compelling evidence is the objective evidence of nonobviousness presented by the applicants. It should be noted that under certain circumstances, objective evidence may be particularly strong and entitled to such weight that it is decisive of the obviousness inquiry. *Ashland Oil*, 776 F.2d at 306. Such evidence must always be considered. *In re Sernaker*, 702 F.2d 989, 996 (Fed. Cir. 1983). Objective evidence of licensing and commercial success are strong factors favoring nonobviousness. *See, e.g., Akzo N.V.*, 808 F.2d at 1481. Such evidence provides an inference that others attempted to solve the problem addressed by the claimed invention but failed. (*Donald S. Chisum, Patents*, § 5.05 [2] (1996).)

The applicants have submitted evidence of secondary considerations, in particular, commercial success and licensing. This includes evidence of the licensed "Sunclean" product having a coating according to the present invention and a water contact angle of less than 10°. The Examiner has suggested that this evidence of secondary considerations is "not necessarily commensurate in scope with the breadth of claims," but has not explained the reason for this belief. The applicants believe the evidence is entirely commensurate with the scope of the claims and, if it is not, would request an explanation as to what is missing. Applicants believe these secondary considerations fully support allowance of the pending claims.

2. The Examiner's References

The Examiner has withdrawn rejections based on Okaniwa, Murasawa, Fukuyama and various Japanese laid-open patent publications. The Examiner has maintained rejections based on Field and Heller.

a. Field

With respect to U.S. Patent No. 3,640,712 to Field ("Field"), the Examiner first contends that "[a]pplicant's arguments concerning exposure to sunlight are not relevant to any of the independent claims," and notes that the claims contain no time limit as to how long or short the light exposure may be. (See Office Action at ¶ 5.) Both independent claims, as amended, now specify exposure to sunlight, which the Examiner appears to acknowledge is not disclosed in Field, certainly not for long enough to obtain water contact angles of 20° or less. Accordingly, the amended claims should be allowed.

In addition, the applicants respectfully submit that the Examiner's contention misses the point. The applicants' position was that the Field patent discloses a process that would not inherently achieve the claimed water contact angles, and one of the reasons was that the Field

process involved short exposure times. The current Office Action certainly does not explain how Field would achieve the claimed contact angles in a few seconds or a minute, and data in the present application indicates that such is implausible. In this regard, Figure 7 of the present application shows that it takes more time than a few seconds of exposure (and more than a minute) to reduce water contact angles to 20° or less. As such, Field plainly does not disclose a process that would inherently -- *i.e.*, necessarily and inevitably -- achieve the water contact angle limitations of the claims.

The Examiner also states: "Further, as Field et al attracts water or water-bearing materials, which is consistent with applicant's claims, the dyes, pigments (that are water-bearing), are considered neither contaminate nor dirt (nor are they oily as what may be removed in applicants' disclosure or was in their demonstration), hence they do not teach against applicant's purpose." [Sic] The applicants respectfully submit that the Examiner's statement supports the applicants' position. That is to say, the Examiner seemingly agrees that Field does not disclose subjecting the substrate to contaminants or dirt. The somewhat contradictory conclusion that Field does not "teach against" the applicants' purpose is erroneous and, even if correct, is irrelevant; the point is that it would not have been obvious to subject the Field coating to dirt in environmental precipitation, or to use the Field coating to achieve a self-cleaning surface.

It is plain that the claimed methods are not disclosed in Field, and that anti-fogging or self-clearing uses would neither obviously nor automatically be realized. Further, the claimed methods do not require a special light source -- sunlight will do. This is a significant advantage, since special light sources can be costly or impractical. For these reasons as well, the rejections based on Field should be withdrawn.

The Examiner also combines Field with EPO Patent Application No. 0 590 477, to Ogawa et al, to reject claims 307, 319 and 322. Ogawa, however, is directed to deodorizing coatings for inorganic architectural materials. Ogawa is not analogous to the Field art area (image-producing films), and it is not directed to the same problem as that of Field (the requirement in prior art films of excessive exposure times). Further, there would have been no motivation to combine the two references, and none has been identified by the Examiner.

For all of the foregoing reasons, the applicants respectfully request withdrawal of the rejection based on Field. Further, claims 307 and 319 (specifying certain metals in the photocatalytic layer), 322 (specifying various substrates), 325 and 328 (specifying that the photocatalytic layer consists essentially of the photocatalyst), and 327 (specifying silica in the photocatalytic layer) have not been rejected based on Field.

b. Heller

The only other remaining obviousness rejection is based on U.S. Patent No. 5,616,532 to Heller et al. ("Heller"). All pending claims stand rejected based on Heller *except* claims 303 (water contact angle  $< 5^\circ$ ), 304 ( $0^\circ$ ), 310 (diffusion prevention layer), 311 (type of light exposure), 314 (water contact angle  $< 10^\circ$ ), 315 ( $< 5^\circ$ ), 316 ( $0^\circ$ ), 321 (diffusion prevention layer), 322 (specifying various substrates), 323 (type of light exposure), 325, 326, 328 and 329.

First, the applicants request withdrawal of the Heller-based rejection of claim 301 (specifying a water contact of  $< 10^\circ$ ) because it is inconsistent with the Examiner's treatment of claim 314 (which also specifies a water contact angle of  $< 10^\circ$ , but has not been rejected). Likewise, the Examiner's rejection of claim 312 (specifying a water contact angle of  $< 20^\circ$ ) is inconsistent with the Examiner's treatment of claims 302, 303, 314, 315 and 316 -- all of which specify water contact angles but which have not been rejected. In other words, the Examiner

concedes that Heller does not disclose water contact angles of  $< 10^\circ$ , but fails to explain how Heller allegedly discloses a water contact angle of  $< 20^\circ$ .

The Examiner's Heller rejections are, moreover, inconsistent with the allowance of claims in Toto's U.S. patent No. 6,013,372. In the prosecution of the '372 patent, a different Examiner evaluated Heller and found that it did not disclose or suggest water contact angles of  $20^\circ$  or less. Before that limitation was added, claims were rejected based on Heller; after that limitation was added, the rejections based on Heller were withdrawn. If the prior Examiner's conclusions were given full faith and credit in the present case, the present rejections based on Heller would have to be withdrawn.

The foregoing inconsistency is significant because MPEP Rule 706.04 requires the Examiner in the present case to follow the earlier Examiner's conclusions. That Rule states in pertinent part:

Full faith and credit should be given to the search and action of a previous examiner unless there is a clear error in the previous action or knowledge of other prior art.

No clear error has been shown in the prior Examiner's conclusion concerning Heller. Further, no "other prior art" is being combined with Heller to reject the presently pending claims. Thus, the rejections based on Heller should be withdrawn based on Rule 706.04.

In any event, the Examiner's rejections should be withdrawn because a portion of the limitation of claims 311 has been added to claim 301, and a portion of the limitation of claim 323 has been added to claim 312. Claims 311 and 323 were indicated to be allowable over Heller.

CONCLUSION

For all of the foregoing reasons, the applicants respectfully request that all of the pending claims be allowed.

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Respectfully submitted,

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